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ABSTRACT

Twenty subjects from the United States and nineteen from India read letters describing a typical Indian and a typical American wedding and recalled them following interpolated tasks. Among the findings were that subjects read the native passage more rapidly, recalled a larger amount of information from the native passage, produced more culturally appropriate elaborations of the native passage, and produced more culturally based distortions of the foreign passage. Whether recalling the native or foreign passage, subjects recalled more of the text elements rated as important by other subjects with the same cultural heritage. The results were interpreted as showing the pervasive influence on comprehension and memory of schemata embodying knowledge of the content of a discourse. (Author/GW) *

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Technical Report No. 97

A CROSS-CULTURAL PERSPECTIVE ON READING COMPREHENSION

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A Cross-Cultural Perspective on Reading Comprehension

When a person reads a story, the schemata embodying his background knowledge provide the framework for understanding the setting, the mood, the characters, and the chain of events. It stands to reason that readers who brought to bear different schemata would give different interpretations to a story. In particular, an individual who read a story that presupposed the schemata of a foreign culture would comprehend it quite differently from a native, and probably would make what a native would classify as mistakes. This was Sir Frederic Bartlett's (1932) hypothesis. The most interesting evidences Bartlett offered in its support were examples from the protocols produced by educated Englishmen attempting to recall the North American Indian folk tale, The War of the Ghosts. The subjects typically modified the tale in a manner consistent with their own culture. Bartlett explained that this "tendency to rationalize . . . gives to what is presented a setting and explanation" (1932, p. 84).

Until recently, Bartlett's work was ignored by those in the main stream of experimental psychology and dismissed by the few persons who continued to investigate prose learning and memory during the years since Remembering was first published. Various objections have been raised against Bartlett's research (Zangwill, 1972). While we will not go over this ground here, most of the real or apparent difficulties have been handled satisfactorily by contemporary investigators (see Spiro, 1977).

There remains one glaring defect, however, which has gone uncorrected even in recent studies. The investigations involving The War of the Ghosts should be conceived as cross-cultural studies. When looked at in this way it is apparent that not all of the proper conditions were included. To the

best of our knowledge, there has not been a single cross-cultural study of discourse processes with a really satisfactory design. The reasons for this shortcoming are illustrated in a study by Kintsch and Greene (1978), who had American college students read and recall one of Grimm's fairy tales and an Apache Indian tale. After five "serial reproductions" the subjects produced 86% of the important propositions in the Grimm fairy tale but only 43% of the important propositions in the Indian story. These are striking results; however, Kintsch and Greene go on (p. 12) to acknowledge that, "ideally, one would like to have a group of Apache subjects who would have no trouble with Tar Baby [the Apache tale] because that story is constructed according to a schema familiar to them, but who would fail with the Grimm's fairy tale. This part of the experiment is, however, not feasible for a number of reasons, most importantly because today's Apaches are bicultural and would be quite familiar with Western story schemata." The problem with an incomplete design in experiments of this type is that one cannot rule out the possibility that the foreign material is inherently more difficult.

The study reported in this paper employed a complete design. That is, there were two groups of subjects with different cultural heritages and two passages. One of the passages presupposed the cultural framework of the first group and the other the cultural framework of the second group. Specifically, Indians ("East" Indians or natives of India) and American subjects were asked to read and recall two letters, one that described an Indian wedding and one that described an American wedding.

A marriage is a ritual of great cultural significance. Every adult member of a society will have a well-developed system of knowledge and

belief about marriage ceremonies. Thus, texts about marriages should be well-suited to a cross-cultural investigation of discourse processes.

There are profound differences between American and Indian weddings. An American wedding has the implicit function of providing an occasion for elaborate ritual, often the only such occasion for the average family. The fact that it serves this purpose is supported by newspaper accounts of weddings in which large amounts of space are devoted to the details such as clothing worn, flowers, aspects of the ceremony, and information about the reception. Pictures of the bride and groom often are carried with the news article. In the American wedding, the bride's family is clearly dominant, is the focus of attention, and is responsible for organizing the ceremony itself. The fact that the bride and her mother are the ones who make all the significant decisions is another indication that the implicit function is one of pagentry since this is the traditional American woman's area of expertise.

The Indian wedding, on the other hand, has a very different implicit function, which involves the financial interests and the social status of the two families. Again, this function can be inferred from newspaper reports. There are no long descriptions of the ceremony, but there is a well-developed genre of matrimonial notices in which the prospective bride's and groom's families may advertise for partners. Financial considerations may be explicitly raised in the advertisement as the following examples from the classified ads of the Hindustan Times, August 28, 1977 show. (Incidentally, there were about 600 matrimonials in that edition.)

> Well qualified match in high income group for a beautiful, slim girl, 28, holding Executive position in a well-known Publishing House. Apply Box 31068-CA, . . .

> Handsome Post-graduate, Agarwal, Industrialist, I.A.S., I.P.S. or ITO match for beautiful, M.A., 21 1/2, only daughter of millionaire industrialist with her personal annual income about fifty thousand from share in father's industry. Please send details with photograph to Parag Sugar Factory, . . .

In the Indian marriage arrangements, the men of both families are the principal participants who settle the not-inconsiderable financial details. There is a great deal of financial maneuvering and debate concerning such matters as the dowry and gifts to the in-laws. The groom's family is dominant, and, since they are the favored group, decisions are made to accomodate their demands and wishes. A marriage can properly be described as traumatic for the bride's family, unlike the American case, in which the occasion is generally a happy one.

There has been a tendency in discourse research for any one investigation to emphasize just a few favored measures. The measures chosen typically correspond to theoretical position. Investigators with a constructivist bias look for elaborations and intrusions. Those who believe in some version of abstractive trace theory measure amount of recall of text elements, particularly as a function of importance of the elements to the overall message. Because of the tendency to concentrate on one or two measures, there are few studies in the literature that give a complete picture of performance.

A range of variables was assessed in this experiment. First, we measured reading time. The expectation was that people would spend less time on a passage written in terms of a familiar cultural framework.

The reasoning was that appropriate schemata speed up and expedite processing, a point particularly well developed by Rumelhart (1977). There is evidence in support of this sort of hypothesis from experiments involving word and sentence tasks (Schvaneveldt, Meyer, & Becker, 1974; Swinney & Hakes, 1976) but, as far as we know, no persuasive evidence at the level of whole texts.

Second, we measured amount of recall of text elements. Within current formulations of schema theory, there are a couple of reasons for predicting that people will learn and remember more of the information in a passage about a wedding in their own culture. An appropriate wedding schema may provide the "ideational scaffolding" to support the learning of detailed information that fits into that schema (Anderson, Spiro, & Anderson, 1978). Once learned, the information may be more accessible because the schema is a structure that permits an orderly and relatively complete search of memory (Anderson & Pichert, 1978; Mandler, 1978).

Third, we gauged amount of recall of important and unimportant text elements. "Importance" is a relative term in the context of a cross-cultural study. It is possible to consider the American view of an American wedding, the Indian view of an American wedding, and so on. Our prediction was, for instance, that Americans would be more sensitive to the ceremonial than the financial aspects of the Indian marriage and, therefore, that Americans would be more likely to learn and remember the former aspects. As theoretical justification for this prediction, one can again appeal to the ideational scaffolding hypothesis or, alternatively,

to the notion that the reader allocates more attention to text elements that are important in the light of the operative schema.

Fourth, we looked for modifications of the text as literally written. No text is completely explicit. The reader fills in what has been left implicit from his general knowledge. A personal letter--as contrasted, say, with an introductory textbook--is especially likely to be succinct on points of common cultural knowledge. It would be gauche for a letter writer to belabor a friend with the obvious. Hence, the letter format seems especially likely to have evoked "reading between the lines."

The changes people make when recalling passages can be roughly divided into two types. There is a category we call elaborations that consists of culturally appropriate extensions of the text. A native would say of an elaboration that it was a statement implied by the text, or perhaps even a paraphrase of a literal text element. The other category is distortions. These are culturally inappropriate modifications of the text. Most that we noted involved stating a text element in such a fashion that a native would say the point had been lost. Also included were outright intrusions from one's own culture. Schema theory predicts elaborations where a text is incomplete and distortions where the reader's schema diverges from the schema presupposed by the text. The inferential processes that produce elaborations and distortions may be active when the passage is read, or later when the material is recalled (Spiro, 1977).

Method

Subjects

Nineteen Indian adults and twenty American adults, all residents in a university community in Illinois and approximately equally divided between the sexes, participated in the study. One further Indian subject's data were not used due to a misunderstanding of the experimental task. American subjects were matched to Indian subjects on the following characteristics: sex, age, highest year of education completed, area of academic specialization, and marital status.

Forty-eight additional subjects, approximately equally divided between men and women, participated in a study to norm the materials. The twenty Indians were enrolled in a liberal arts curriculum in a four-year college in a large city in the state of Maharashtra, India. The twenty-eight Americans were enrolled in general studies or technical curricula at a junior college in Illinois.

Materials

Two letters were written describing typical Indian and American weddings. The passages were analyzed for T-scores, which give a measure of syntactic complexity based on the average number of words in an independent clause. The American passage had a T-score of 12.60; the Indian passage, 12.56. The passages were then parsed into idea units, and these idea units were verified by two independent judges. There were 136 and 127 idea units respectively in the American and Indian passages.

Design and Procedure

Subjects were given booklets that contained instructions, sheets on which the time was recorded, the passages, filler tasks, blank pages for free recall, questions on the two experimental passages, and a questionnaire. The subjects were told that the study involved "how the content of written material affects the reading ability of native and non-native speakers of English." The directions stated that while we were interested in how long it would take them to read each passage, this was not a speed test. They were instructed to read for comprehension and to be prepared to answer questions on the passages.

All subjects read a 671 word warm-up passage containing a discussion of volcanoes. They then read the American or Indian passage. Order of the passages was counterbalanced. Next, to introduce a short retention interval, they completed 50 items from a vocabulary test.

After the vocabulary test, subjects turned to two blank pages and read instructions which emphasized verbatim recall of the letter about the wedding. They were told to "maintain the same order and use the same words," to "write down every bit of the letter" they could remember and, if they could not remember the exact words, to write down the sentence "as close to the original as possible." The page following recall contained five questions aimed at inferences about specific events described in the passage (e.g., "What is the significance of catching the bouquet?", "Why were Prema's parents not sure how they felt about Prema's fiancé visiting her?"). The answers to these questions were not systematically

analyzed, though casual inspection does indicate that the responses were consistent with those observed in the free recall protocols.

The second wedding passage, twenty nonsense syllogisms, two pages for recall of the second wedding passage, and five questions about the second wedding passage followed. The final page consisted of the personal data questionnaire which was used for assessing familiarity with both types of wedding and for matching Indian and American subjects.

In the norming study, subjects were given booklets which contained instructions, the two letters parsed into idea units, a listing of all of the idea units in the letters each preceded by a five-point rating scale, and an autobiographical questionnaire. Instructions explained that certain ideas in a passage always strike a reader as more important than others. Subjects were asked to read one letter, and rate each idea unit on a five-point scale ranging from "essential" to "easily eliminated due to its unimportance." They then read the second letter and rated the idea units in that passage. Order was counterbalanced across nationality and sex. Subjects were given unlimited time to finish the task.

Scoring

The previously identified idea units in each protocol for the two experimental passages were scored for gist. Also scored were elaborations of the native passage from the perspective of native culture and distortions of the foreign passage attributable to lack of knowledge of the foreign culture or intrusions from the subject's native culture. The final category was overt errors that did not have an identifiable cultural basis.

Because of the cross-cultural nature of the study and gaps in the experimenters' knowledge of the foreign culture, every protocol was scored by a native American (Steffensen) and a native Indian (Jogdeo). Conflicting scores were resolved by discussion. In most cases, this involved simply stating or explaining the relevant facts.

Results

The main results of the experiment are summarized in Table 1. The first row contains mean reading time. The remaining rows present mean

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Insert Table 1 about here

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frequency of occurrence in free recall of the indicated types of protocol elements. Each measure was subjected to an analysis of variance in which nationality and passage order were between-subjects factors and passage was a within-subjects factor. It should be mentioned in passing that these analyses were not independent. However, the results were very clear cut and it was judged that the approach provided an acceptable treatment of the data. The only term of theoretical interest in any analysis was the Nationality x Passage interaction.

As expected, the Americans read the American passage faster than they read the Indian passage whereas the Indians read the Indian passage faster than the American passage, $F(1,35) = 10.09$, $p < .01$. There was also a main effect for nationality, with Americans being faster, $F(1,35) = 26.37$, $p < .01$. Subjects took considerably more time on the second passage than on the first, $F(1,35) = 25.29$, $p < .01$. Our

experience usually has been that people spend less time on later material (Watts & Anderson, 1971; Reynolds, Standiford, & Anderson, 1978). The explanation for the somewhat deviant finding obtained in this case seems to be that subjects found the demand to reproduce exactly the entire first passage an imposing task and that they studied the second passage more carefully to try to do better the second time.

Also as expected, the Americans recalled more idea units from the American passage than from the Indian passage while the reverse was true of the Indians, $F(1,35) = 39.84$, $p < .01$. Americans recalled slightly more material overall than Indians, $F(1,35) = 5.09$, $p < .05$. Paralleling the results obtained with time, the subjects recalled more idea units from the second passage than the first, $F(1,35) = 22.57$, $p < .01$.

The predicted interaction of nationality and passage appeared with respect to both elaborations, $F(1,35) = 208.67$, $p < .01$, and distortions, $F(1,35) = 128.24$, $p < .01$. There were no other significant effects in the analyses of either of these measures.

No hypotheses had been formulated with regard to omissions or miscellaneous overt errors. For what it is worth the Nationality x Passage interaction was significant with respect to the former measure, $F(1,35) = 8.87$, $p < .01$, but not the latter, $F < 1.00$. There were fewer omissions on the second passage than the first, $F(1,35) = 18.42$, $p < .01$. More miscellaneous overt errors were made on the American than the Indian passage, $F(1,35) = 6.46$, $p < .05$.

A subsidiary analysis involved an index of relative cultural importance derived from the rating data. The ratings of each national group

on each passage were converted to standard scores. A set of idea units rated approximately one standard deviation (or more) more important by Americans than by Indians and a second set of units rated about a standard deviation more important by Indians than Americans were selected for both the American and Indian passages. Examples of these idea units are presented in Table 2.

Insert Table 2 about here

The next step was to analyze recall of idea units identified as having contrasting cultural significance. Subjects recalled 34% of what for them were important idea units but only 29% of the unimportant units, $F(1,31) = 4.29$, $p < .05$.

On the debriefing questionnaire, only one Indian subject indicated having attended an American wedding. However, a number of Indians rated themselves as having some knowledge of American wedding customs. Rated familiarity and number of years resident in the United States correlated .58 and .31, respectively, with amount of gist recall. This suggests that stronger results would have been obtained had naive Indian subjects been used. No Americans had attended an Indian wedding, visited India, or presumed any familiarity with Indian marriage customs.

Discussion

The conclusion from this study is straightforward: The schemata embodying background knowledge about the content of a discourse exert

a profound influence on how well the discourse will be comprehended, learned, and remembered. Because a complete counterbalanced design was employed, it is impossible to dismiss our results on the grounds that the foreign material was inherently more difficult. The case is especially convincing since significant disordinal interactions were obtained, as predicted, on each and every one of several measures.

The one caveat that seems in order is that while the effects observed in this study generally are consistent with schema theory, the precise mechanisms responsible for the effects are not well-understood. For instance, did American subjects spend more time on the Indian letter because of the lack of adequate "high level" knowledge about an Indian wedding or because of the cumulative effect of a series of "low level" problems, such as not knowing what a dhoti is? Is the fact that a larger amount of material was reproduced from the native than the foreign passage primarily attributable to processes at work when the passages were read or, as some research suggests (Anderson, 1978), is a large role played by mechanisms in action later when the material was retrieved and written down? These kinds of questions still need answers.

We turn next to a discussion of some of the most prominent of the elaborations and distortions that were observed. Maybe it is simply the human interest value,but ever since Bartlett's day the actual instances of intrusions, gaps, inferences,and distortions in text recall have provided the most compelling evidence of the role of background knowledge in discourse comprehension and memory.

Americans use the special term 'wedding' for the ceremony itself and 'marriage' to refer to the resulting state of affairs. Indians do not typically use a separate term to refer to the ceremony. It can be argued that this reflects the relative unimportance of the ceremony in Indian culture. One of the most ubiquitous changes we found was the substitution of the term 'marriage' for 'wedding' by Indian subjects. Our American wedding was prosaically described as "beautiful," referring of course to the pagentry and ritual involved. Indian marriage ceremonies are not so described and, predictably, we found that a number of Indian subjects omitted this adjective when describing the American wedding.

A section of the American passage upon which interesting cultural differences surfaced read as follows:

> Did you know that Pam was going to wear her grandmother's wedding dress? That gave her something that was old, and borrowed, too. It was made of lace over satin, with very large puff sleeves and looked absolutely charming on her. The front was decorated with seed pearls.

One Indian subject had this to say about the American bride's wedding dress:

I15 She was looking alright except the dress was too old and out of fashion.

Wearing an heirloom wedding dress is a completely acceptable aspect of the pagentry of the American marriage ceremony and reflects the interest in tradition that surfaces on this occasion. Subject 15 appears to have

completely missed this and, on the basis of the Indian emphasis on the relative financial power of the two families (which can be shown by even such a small detail as wearing an up-to-date, fashionable sari), has inferred that the dress was out of fashion. An American subject specified the tradition involved:

A39 Pam's mother wants Pam's daughter to carry on the tradition of wearing the family wedding gown.

The gifts described in the Indian passage that were given to the groom's family by the bride's, the dowry, and the reference to the concern of the bride's family that a scooter might be requested were a source of confusion for our American subjects. First of all, the "agreement about the gifts to be given to the in-laws" was changed to "the exchange of gifts," a wording which of course suggests that gifts are flowing in two directions, not one, by two of our American subjects. Another subject identified the gifts given to the in-laws as favors, which are often given in American weddings to the attendants by the bride and groom:

A10 There was some discussion of what the favors would be but they settled on silver cups for the men and saris for the ladies and toys for the children.

Other protocols were extremely sketchy and vague concerning the arrangements:

A27 There were dowry gifts from both sides of the family--jewelry, saris. Something about a scooter, also.

As would be expected, Indians specified this part of the passage in considerable detail and spelled out what was only inferrable. That the gift-giving goes one-way was clearly stated:

I20 Prema's parents gave their in-laws as they agreed before.

Descriptions of these gifts as "traditional" occurred in Indian protocols, though not the text, but no American subjects "recalled" such information:

I17 The in-laws did not ask for any dowry, though they did stipulate that the traditional gifts of silver cups for the men in the groom's family, and saris to the women be given.

Many of the Indian protocols described these gifts as modest, something the passage did not specify and no American subject inferred:

I16 The wedding gift was not that much.

I21 They asked for dowry and other things though modest--saris for girls, silver mugs for men, etc.

Notice also that Subject 21 missed the discussion of the scooter and mistakenly recalled that a dowry was requested. This, in fact, is still the usual state of affairs.

The passage on the gifts to the bride was also elaborated upon:

I14 According to the tradition saris and jewelry were given to the bride by her mother and mother-in-law.

This subject went beyond the text in identifying the gifts as coming from the mother and mother-in-law who, incidentally, usually spend considerable

amounts of time selecting and purchasing these items.

The text described Prema's in-laws as "nice enough people." To an American, this seems to be tepid approval, but in the Indian context it constitutes enthusiastic endorsement, particularly when one considers that no dowry was requested and the groom was their only son:

I6 Her in-laws were really nice for they didn't make any fuss although he was their only son.

I32 Her in-laws seem to be very nice people. Though he is their only son they didn't give much trouble.

These protocols suggest that it is the normal state of affairs for the in-laws to give trouble since they are considered very nice when they don't create too many problems.

The jewelry in the two ceremonies demands special attention. A high proportion of the Indian subjects remembered that the wedding was a two-ring ceremony and that a diamond was involved. That this reflects the importance of finances in the Indian wedding is shown by such intrusions as:

I3 . . . and bridegroom's side was very happy because she was wearing diamond of 2 carots.

This subject did not recall that the bridegroom himself had given the diamond to the bride, and instantiated this bit of information as part of the jewelry the bride's family gives her.

Many Americans, when they recalled the information about rings at all, explicitly identified the American bride's diamond as the engagement ring, although the passage did not:

A39 . . . hers was platinum to match her 2-carat engagement ring.

This was not an elaboration found in Indian protocols, many of which suggested that only minimal comprehension had been involved. The most common error involved the number of rings (two rather than three):

I14 The bride's ring was a two carat diamond placed in platinum and bridegroom's is of gold.

The Indians' interest in jewelry rather than the pagentry of the occasion was shown by the fact that a number of Indians remembered that there were seed pearls on the American bride's dress. One Indian subject recalled no detail of the descriptions of attire beyond the fact that:

I4 Pam's gown had pearl beads embroidary in the front.

Another cluster of errors involved the Indian wedding, the feast and the reception. Since there are two events for guests after an Indian wedding, it could be predicted that American subjects would collapse these into one, which they did. In one case where the subject remembered that there was some time pressure because the writer was in the last batch to eat, the meal (i.e., the Indian wedding feast) was put before the wedding ceremony itself, thus supplying a new reason to rush when the

original one, the Indian reception, was amalgamated with the feast.

A rich source of cultural elaboration and cultural lacunae was the seating arrangement for the feast. One American spelled out his disbelief that good friends would be served last:

A10 And the husband & bride & the in-laws ate first and we ate last since we're such good friends of them (whaaat?).

This protocol included the bride in the first group, but this is not necessarily the way things are done. The bride may eat later, with only the groom eating at the first sitting. An Indian subject's understanding of the relative significance of the various people involved in the wedding influenced the following protocol:

I32 The first batch was of important persons like her in-laws and groom. We all the friends and her close relatives ate in the last batch.

Only the in-laws were described as "important" in the experimental text, but this subject included the groom as well.

There were other sections where the two populations of subjects showed a differential insight into the power relationships in the Indian marriage. For example, one American produced the following extraordinary (by Indian standards) protocol:

A13 Her fiancé's parents did everything they were asked to do even though he was their only son. Since Prema's parents did not give a dowry, they were afraid to ask for too much. They didn't ask for a scooter, but they got one anyway.

There is no asking by Indian in-laws or groom. As we have already indicated, they call the tune while the bride's parents pay the piper, as the following subjects' use of "demand" indicates:

I20 During the engagement period her husband demanded to see her for two or three times and her parents, understanding the modern times, convinced themselves that at least her husband didn't see her without their permission.

This subject also provided some nice insight into the parental reasoning (not explicit in the passage) which may accompany permission for such a visit.

After an Indian marriage, there is nothing equivalent to the American honeymoon. Some American readers of the Indian passage instantiated the couples' trip to the father-in-law's home in Nagpur as a honeymoon. Another American subject reflected uncertainty through corrections that she made:

A37 Prema and ____ are taking a trip to the north of India, and will ~~visit~~, ~~stay~~, live with his father's brother and family (his wife and 2 children).

There was no such confusion on the part of the Indian readers, and one in fact recalled the passage in phrasing that reflects the marriage as a transfer of the bride from one household to another:

I4 After two days of marriage she was taken to Nagpur. Her father-in-law accompanied her.

Another recalled the trip as involving the entire family, which is the usual arrangement:

I15 After the marriage Prem and her husband and in-laws left for Nagpur where Prem's father-in-law has a house.

It might be expected that Indians would not recall any details about the American honeymoon, but this was not the case. Most remembered a fairly high percentage of the information. This can be explained in terms of the fascination of Indians with the Western style honeymoon. The following passage is from A Bride for the Sahib, a short story describing the tragic end of the marriage of a western-oriented Indian and his highly traditional bride (Singh, 1967):

> The honeymoon also created difficulties. His mother blushed as if he had said something improper. The Das's were outraged at the suggestion that their daughter should go away for a fortnight unaccompanied by a younger sister. But they resigned their daughter to her fate. Her husband had been brought up as a Sahib and she must follow his ways.

The Indian bride has a much smaller role in the selection of a groom than her American counterpart, and when she leaves her father's home, she is often going to less freedom, not more. The fact that she will have major adjustments to make is indicated by one of the last sentences from the text which reads, "We are all hoping that she does not have too hard a time adjusting to her new life." American and Indian subjects assimilated this to their own culturally-based expectations concerning married life.

Typical of the American version was:

A26 Well, I hope Prema enjoys her new life.

Indian subjects, on the other hand, sometimes discussed very specifically what the adjustment would involve:

I7 I hope she will not have a hard time adjusting to her new family.

I18 I hope she get along well with her inlaws.

The mood of an Indian marriage, for the bride's family, is often one of anxiety over the financial arrangements and the bride's new life. This shows in the Indian protocols in the elaborations on the theme of grief, only hinted at in the passage, when the bride departed for her father-in-law's home. It also shows in the Indian's recall of the American passage in the balancing of the description of the American parents' enthusiasm over the fact that their son-in-law is an international traveler, as in the following protocol:

I2 They were anxious as their daughter was going to get married and wondered at the fact that her husband would be an international traveler.

Americans recalled the same passage much more favorably and generalized the positive mood of the occasion:

A24 Everyone said she should have an exciting life marrying a man who does so much international traveling.

An often heard claim is that elaborations and distortions of the kind we have just summarized are oddities that appear only when the text is "bizarre" (Zangwill, 1972; Meyer, 1975). From the point of view of a native, the letters employed in the present study certainly were not bizarre. They were completely banal, predictable in form and content. From the point of view of a foreigner, to be sure, the letters were occasionally exotic and overall rather difficult to understand. For the sake of argument one can concede that a personal letter about a marriage in a foreign culture might be called somewhat "bizarre." One can also concede that this is one reason distortions in recall were so apparent in this investigation.

What must be resisted is the implication that since the foreign letter might be classified as "bizarre" it is safe to ignore the distortions observed in recall. Contriving a situation in which there is a mismatch between the schemata presupposed by a text and the schemata the reader is able to bring to bear highlights the enormous importance of the reader's existing knowledge of the content of a text. However, it would be a mistake to suppose that existing knowledge plays a lesser role when there is a good match. All that happens then is that its role is less apparent to the social scientist studying free recall. Since the schemata of the author, the reader, and the person who scores the protocols will correspond, most modifications of the text will be counted as paraphrases.

There have been a number of recent investigations of story comprehension and recall that have employed the term "schema" in a way similar,

but not identical, to the manner in which we are using the term. The common element in everyone's usage is the emphasis on high-level structures. The distinction we would like to draw--though we do not know how to do so with any precision--is between structured knowledge of a language and structured knowledge of an aspect of physical or social reality. Most theorists seem to be emphasizing the structure that in some sense resides in the text form when they speak of "story schemata" (Rumelhart, 1975; Kintsch & Greene, 1978) or "story grammars" (Stein & Glenn, 1975; Mandler & Johnson, 1977). The preceding sentence uses the verb "seem" because, while there is a discernible bias in manner of speaking, most writers have not taken an explicit position. The fact is that it is uncertain whether the interesting empirical results that have been reported in research involving stories should be attributed to linguistic or extralinguistic knowledge structures.

There is no such ambiguity in interpreting the results of the study reported here. It is transparent that our findings must be interpreted in terms of "content" schemata rather than "textual" schemata. To argue otherwise, one would have to claim that for each distinct text form there is a set of conventions that comprise the textual schema for that form. Thus, in addition to a story schema, it would be supposed that there is a legal brief schema, a psychological report schema, several poetry schemata, news article schemata, and, of course, a personal letter schema. One would have to further suppose that there are sharp differences between the Indian letter schema and the American letter schema, and that it is

this fact that accounts for the observed effects on comprehension and memory. Obviously this line of argument will not work.

One clear instance of violation of what may seem to be a text-level language convention did come to our attention. An Indian letter customarily ends with an expression of respect to be conveyed to the elder members of the recipient's family and blessings for the younger. While our Indian letter was written by a native Indian, it was closed with the less traditional, "Write soon." In the rating study, this brief ending was considered important by the Indian subjects, probably reflecting their attention to this nontraditional textual feature.

A convention was perhaps violated, but what sort of convention? Morgan (1977, pp. 14-15) has proposed that

> . . . there are at least two distinct kinds of conventions involved in speech acts: conventions *of* the language (for example, the meaning of *dog*, the fact that in English the subject of a passive sentence is interpreted as (roughly) patient, and so forth) and conventions of the culture *about* the use of the language in certain cases (for example, the fact that to start an auto race one says 'gentlemen, start your engines' (and *means* it), the fact that one is expected to say something in the way of consolation at funerals, and so on) . . . The former, conventions *of* the language, are what make up the language, at least in part. The latter, conventions *about* the language, are a matter of culture (manners, religion, law, . . .) not knowledge of the language *per se*. (italics in the original)

Following Morgan, even if one wishes to contend that it is a convention of English that a well-formed personal letter has as a constituent a Closing,

the uncommon ending violated not this convention, but instead a convention of Indian culture about how a Closing ought to be instantiated.

Finally, we wish to stress again (cf. Anderson, 1977; Anderson, Reynolds, Schallert, & Goetz, 1977; Anderson, Spiro, & Anderson, 1978) our conviction that differences in background knowledge about the content of text material may be an important source of individual differences in reading comprehension. In particular, it seems a distinct possibility that some portion of the difficulties that minority children in the United States often have in learning to read with comprehension is attributable to mismatches between subcultures and the majority culture whose viewpoint predominates in the materials children are given to read.

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Table 1

Mean Performance on Various Measures

	Nationality			
	Americans		Indians	
Measure	American passage	Indian passage	American passage	Indian passage
Time (seconds)	168	213	304	276
Gist recall	52.4	37.9	27.3	37.6
Elaborations	5.7	.1	.2	5.4
Distortions	.1	7.6	5.5	.3
Other overt errors	7.5	5.2	8.0	5.9
Omissions	76.2	76.6	95.5	83.3

Table 2

Examples of Idea Units of Contrasting Importance to Americans and Indians

American passage		Indian Passage	
Idea units more important to Americans	Idea units more important to Indians	Idea units more important to Americans	Idea units more important to Indians
Then on Friday night they had the rehearsal at the church and the rehearsal dinner, which lasted until almost midnight.	She'll be lucky if she can even get her daughter married, the way things are going.	Prema's husband had to wear a dhoti for that ceremony and for the wedding the next day.	Prema's in-laws seem to be nice enough people. They did not create any problem in the wedding, even though Prema's husband is their only son.
All the attendants wore dresses that were specially designed to go with Pam's.	Her mother wore yellow, which looks great on her with her bleached hair, and George's mother wore pale green.	There were only the usual essential rituals; the curtain removal, the parents giving the daughter away, walking seven steps together, etc., and plenty of smoke from the sacred fire.	Since they did not ask for any dowry, Prema's parents were a little worried about their asking for a scooter before the wedding, but they didn't ask for one.
Her mother wore yellow, which looks great on her with her bleached hair, and George's mother wore pale green.	Have you seen the diamond she has? It must have cost George a fortune because it's almost two carats.	There must have been about five hundred people at the wedding feast. Since only fifty people could be seated at one time, it went on for a long time.	Prema's parents were very sad when she left.

Note:--Important idea units are underlined.

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